Research in service of society

# From **power plants** to **passports:**
# safe digital data

Information and communication technologies (ICT) have become an indispensable part of our daily lives. At the same time, European digital infrastructures are increasingly interconnected; failure of a single system could have disastrous effects across Europe. Scientists at the Joint Research Centre are exploring the links between existing systems and developing ways to harmonise ICT security and provide better protection against cyber-attacks. They also support the safe switch from traditional paper-based processes to electronic systems.

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## Simulating hacker attacks

In the Cybersecurity Laboratory at the European Commission's Joint Research Centre (JRC), scientists simulate hacker attacks on IT-based control systems in power networks, seeking deeper understanding of the complex interdependencies and vulnerabilities of the European power grid. With the simulation results, the JRC's scientists create and improve security protocols and develop common standards to deal with the safe use of IT in control systems for power networks. Operators of power plants can then better protect themselves from cyberattacks. The simulation results are also used to research the impacts of conventional attacks.

## Passport data protected everywhere

European electronic passports not only speed up the controls and cut queues at airports and border crossings; they can also serve in the identification of suspected criminals in a far more effective manner than any system that depends on manual inspection. But the safe operation of the electronic passport system requires that all EU-countries as well as the companies that supply technical equipment fully implement agreed technical standards. Any failure in the certification procedure of technical equipment could put the whole system at risk. Researchers at the JRC are thus turning complex requirements into technical specifications to ensure that the European electronic passports system does not fall prey to fraud or cyberattacks. Its work may contribute to the protection of other European identification documents, such as visas or residence permits, in the near future.
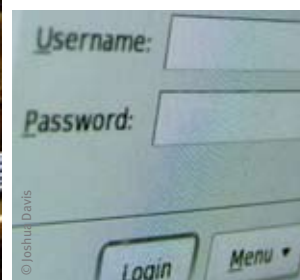
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